

EXHIBIT 2

EXPERT REPORT
Engineering Ethics

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In Re Flint Water Cases
Civil Action No. 5:16-cv-10444-JEL-MKM
U.S. District Court, Easter District of Michigan
(coordinated docket)

February 2, 2023

I. Scope of engagement

I was asked by counsel for Veolia North America ("VNA") to evaluate and respond to engineering ethics claims against VNA made by plaintiffs' experts in this litigation, regarding whether VNA engineers complied with applicable engineering ethics codes during the course of their work on the public water supply for the City of Flint conducted in February and March 2015. My analysis is based on available litigation materials (documents, depositions, and expert reports), additional engineering ethics materials, and my knowledge, training, and experience in engineering ethics as outlined below. Insofar as my opinions depend on factual claims, they are premised on the accuracy and completeness of litigation materials provided. I reserve the right to amend my opinions based on new information received.

II. Qualifications and Compensation

I am the Sue G. and Harry E. Bovay Professor of the History and Ethics of Professional Engineering at Texas A&M University. I have authored six books, including *Ethics for Engineers*, Oxford University Press, 2019. I received my Ph.D. in philosophy in 2003 from the Royal Institute of Technology in Stockholm, Sweden. While working there I drafted the first code of ethics for the Royal Institute of Technology when serving as secretary on its ethics committee. I have taught courses in engineering ethics at the Royal Institute of Technology in Sweden, at Eindhoven

University of Technology in the Netherlands, and since 2014 at Texas A&M University (as Instructor of Record for 19 iterations of 482 Ethics and Engineering). My compensation for writing this opinion is \$100 per hour, which is on par with my hourly salary at Texas A&M University (currently \$15,054 per month). A copy of my curriculum vitae is attached, including a listing of my publications over the past 10 years. Besides my deposition in this case in 2021, I have not previously testified in court or at deposition.

III. Summary of Opinions

Opinion 1: Plaintiffs' experts apparently misunderstand the meaning, function, and application of a code of engineering ethics. A professional engineering ethics code is meant to inspire, guide, and motivate members of an engineering organization to act ethically within the course of their engineering work. When a code is applied to specific conduct, it is applied by a professional organization through established procedures, not by private individuals seeking to criticize engineers, and certainly not by engineers hired to offer litigation opinions. Each professional organization has its own procedure (typically a specially appointed committee) for handling ethical allegations against members. Private ethical analyses carry no professional weight.

Basis: NSPE Code of Ethics, ASCE Code of Ethics, and my professional knowledge.

Opinion 2: Plaintiffs' expert Dr. Lawrence Russell cites an NSPE Board of Ethical Review (BER) case, No. 20-04, as supporting claims that VNA's engineers failed to meet ethical obligations. This hypothetical case, which is not an evaluation of any actual engineer's ethical conduct, differs materially from the facts in this case, and in particular as related to the conduct of VNA. The dissimilarities make BER 20-04 an inappropriate basis on which to evaluate VNA's conduct in Flint. Moreover, BER 20-04 was issued five years *after* the events in Flint, and BER changed its interpretation of the relevant part of the code during that period. Because of this change of ethical policy, the opinions expressed in BER 20-04 should not be applied to the Flint case retroactively.

Basis: NSPE Code of Ethics, the NSPE Board of Ethical Review database, and my professional knowledge.

Opinion 3: Plaintiffs' experts claim that VNA's engineers failed to prioritize public safety, health, and welfare in the conduct of their work for the City of Flint, to the extent that an ethical violation occurred. Specifically, plaintiffs' experts claim that the NSPE code's requirement to "hold paramount" public safety (Canon 1) means that a consulting engineer must override client considerations, constraints, and limitations to make engineering recommendations that maximize public health and safety. In my opinion, that is incorrect. Canon 1 does not require an engineer to maximize safety. Nor does it require an engineer to set aside known problems or issues (such as carcinogenic TTHMs) to investigate other potential issues for which there is no or little evidence – especially not if the project is small in scope and is expected to be completed within a few weeks.

Basis: NSPE Code of Ethics, ASCE Code of Ethics, the NSPE Board of Ethical Review database, and my professional knowledge.

Opinion 4: Plaintiffs' expert Dr. Paolo Gardoni claims that "exceeding the regulatory minimum" was not merely permissible, but was ethically *required* for VNA's engineers in Flint (Gardoni 2020, p. 11). This is not correct. Regulations are based on the same core idea as the paramountcy clause in the NSPE and ASCE codes: a strong desire to protect the safety, health and wellbeing of the public. The regulatory standard is developed with the safety, health, and welfare of the public in mind. Engineers who ensured that the regulatory minimum in Flint was met or exceeded were in compliance with the ethical requirement to hold paramount the safety, health, and welfare of the public.

Basis: NSPE Code of Ethics, ASCE Code of Ethics, the NSPE Board of Ethical Review database, and my professional knowledge.

report and its March 4, 2015 PowerPoint presented to the Technical Advisory Committee. Finally, we have Mr. Howard Croft's presentation at the City Council Meeting in September 2015, cited above. All these points are mentioned in Dr. Bellamy's report. My conclusion, based on this information, is that VNA informed Flint officials in an appropriate manner, and that Flint understood the importance of this information.

d. Opinion 4 (Independent statement to regulator)

Plaintiffs claim that VNA's engineers had a responsibility to make an "independent" statement to regulatory authorities about concerns for public health and safety. It is unclear what form of statement plaintiffs' experts have in mind, but it should be noted that the NSPE Code does not specify any specific form in which engineering concerns should be raised.

Outside of a circumstance in which VNA engineers had reason to believe lead release in excess of the regulatory standard was occurring, and that this posed an *imminent* threat to public health and safety, the Code does not provide any "whistleblowing" obligation. In fact, the Code counsels against violating client trust by making unapproved statements outside the client-engineer relationship. In a landmark case on whistleblowing (BER 82-5), in which there was no imminent threat to the public, BER concluded that whistleblowing is optional but not required: "Engineer A does not have an ethical obligation to continue his effort to secure a change in the policy of his employer under these circumstances, or to report his concerns to proper authority, but *has an ethical right to do so as a matter of personal conscience.*" (emph. added). However, if public safety, health or welfare is jeopardized, whistleblowing is sometimes ethically required, but at least two additional criteria must hold for such an obligation to emerge:

- (i) The threat "rises to the level of an *imminent* or *urgent* threat to public safety, health, or welfare" (BER 13-9, my emph.)
- (ii) The engineer "*is in possession of verifiable facts or evidence* which would substantiate a charge that an actual danger to the public health or safety exists." (BER 84-4, my emph.)

think it was, it was arguably disclosed at the latest at the moment VNA submitted its offer to manage the entire water facility in the letter to Mr. Ambrose on March 25, 2015.

V. Conclusion

Based on my review of the large number of documents made available to me, I conclude that there is no evidence that VNA engineers violated the NSPE or ASCE codes of ethics in Flint in February/March 2015. VNA engineers held paramount the safety, health and welfare of the public. They did so by making recommendations to help the City of Flint achieve compliance with the relevant drinking water standards, including considering addition of chemicals for corrosion control. They were not required to verify after the contract expired whether Flint complied with their advice, and their judgement was to the best of VNAs knowledge not overruled. Moreover, the offer to extend the contract did not create any financial conflict of interest for VNA engineers.

My conclusions about the actions of VNA engineers should not be construed to be applicable to the actions of other engineers, in particular not to engineers working for MDEQ, EPA or the City of Flint.

I have reached the foregoing opinions based on my review, investigation, and analysis of relevant materials, in light of my knowledge, training, and experience, and I offer the foregoing opinions to a reasonable degree of engineering ethical certainty.



Martin Peterson, Ph.D.

Dated: February 2, 2023